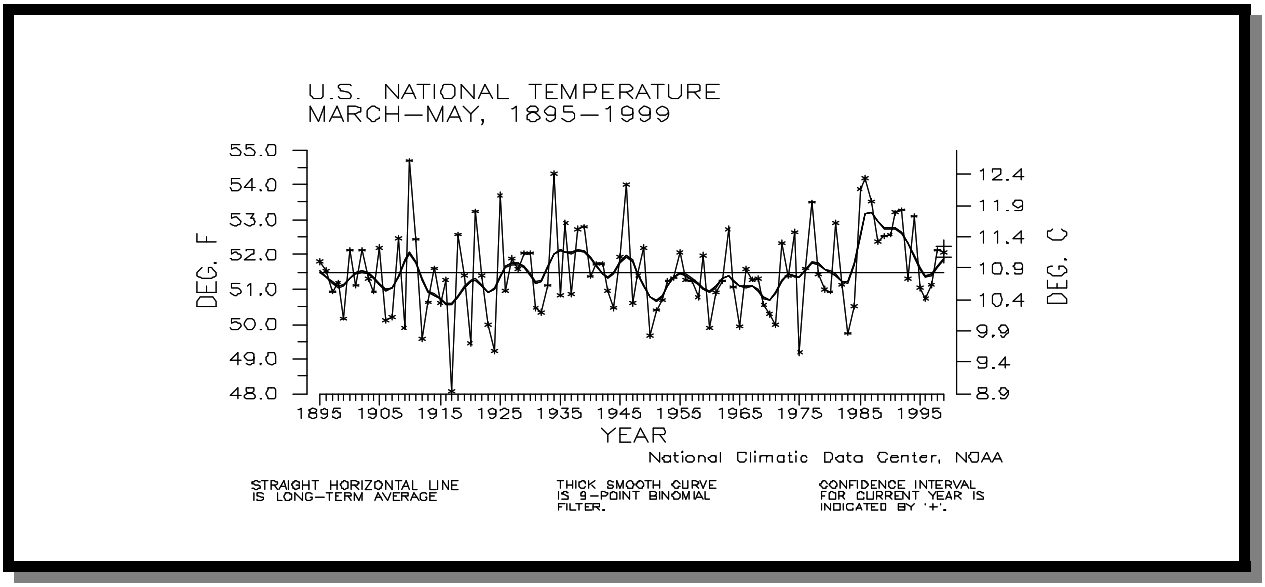
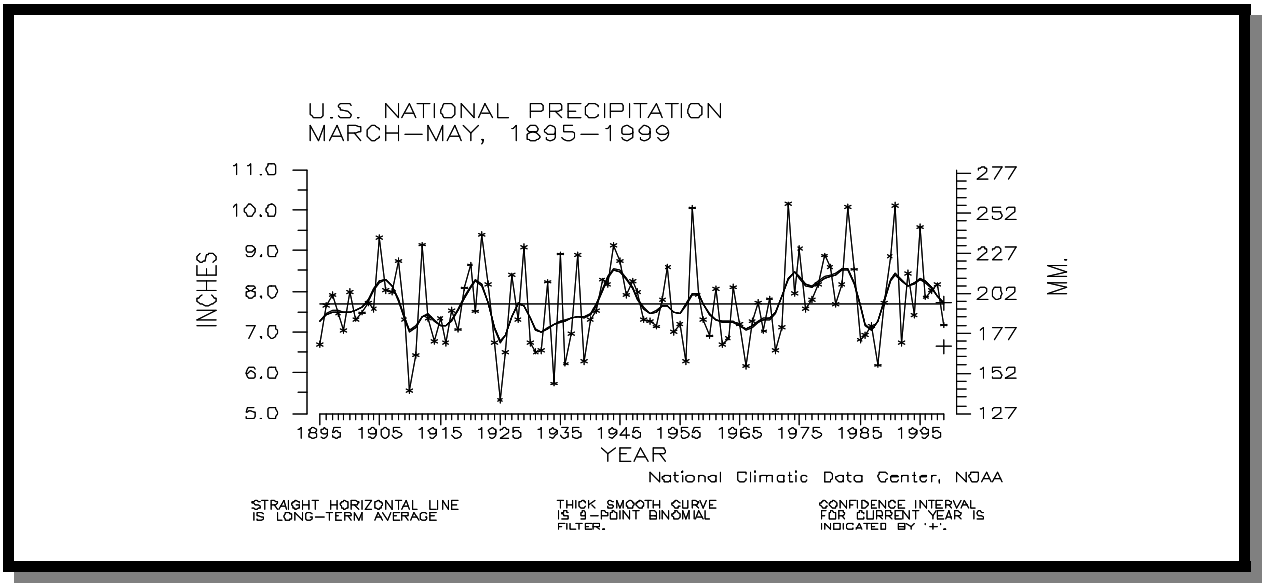
Monthly Activity Report

May 1999





Preliminary data for Spring (March-May) 1999 indicate temperatures for the three-month period averaged across the contiguous U.S. were above the long-term mean, ranking as the 31st warmest such three-month period since 1895 (top figure). Nearly six percent of the country was much warmer than normal, while less than one percent of the country was much cooler than normal.

Preliminary data for Spring (March-May) 1999 indicate the three-month precipitation averaged across the contiguous U.S. was below the long-term mean, ranking as the 33rd driest such season since 1895 (bottom figure). Over ten percent of the country was much drier than normal, while about five percent of the country was much wetter than normal.

DIRECTOR'S HIGHLIGHTS

Data Rescue Activities

During the month of May, the Meteorological Paper Imaging project shipped 1,116 boxes of paper records to the West Virginia contractor. This gives a total of 32,525 units shipped, or approximately 14.6 million pages. Some 196 CD-ROMs were received from the contractor, with these containing 1,493,119 images (pages). In total, the National Climatic Data Center (NCDC) has now received 1,669 CD-ROMs containing 12,794,679 images. A total of 1,454 of the CD-ROMs have been processed through NCDC's quality assurance program.

Under the Data Rescue project to key historical Cooperative observations, a total of 2,099 microfiche were shipped to Image Entry (IE) in London, KY, during May. This brought the total fiche shipped since the beginning of project to 11,063. Since shipping all the Historical Climatological Network stations to the contractor, NCDC began shipping all the remaining Cooperative stations in state order beginning with Alabama. The production schedule calls for approximately 500 fiche to be shipped weekly. The last shipment in May was all California stations. The contractor has begun to ship the keyed stations back to NCDC on cartridges. During May, 21 cartridges of keyed Cooperative data were shipped to NCDC accounting for the station data from 7,790 fiche. Seventy-five percent of the data shipped to IE has been keyed and returned to NCDC.

CLIMATE DATA AND INFORMATION SERVICES

✦ Database Development

NWS NCDC Archive Requirements

The new National Climatic Data Center (NCDC) NOAAPort Data Archive and Retrieval System (NDARS) will provide the baseline functionality necessary for follow-on Advanced Weather Information Processing System (AWIPS)-like display and servicing capabilities funded by the National Weather Service (NWS). The NCDC has drafted the NDARS System Requirements and Conceptual Design Document at the request of the NWS AWIPS Program Office. Currently under review by the NWS, this document includes NWS/OM Service Records Retention System and Next Generation Weather Radar (NEXRAD) Level II defined requirements, as well as a systems design for the development and implementation of NDARS. This single system design satisfies all NWS requirements with an integrated approach. NWS archive requirements at NCDC must be satisfied before the NWS's Automated Field Operations System can be decommissioned and AWIPS commissioned.

Hourly Precipitation Data Team

The Joint National Climatic Data Center (NCDC)/ National Weather Service (NWS) Hourly Precipitation Data Team, as coordinated by the Office of the Federal Coordinator for Meteorology, has developed initial requirements for a non-paper tape data logger. National Oceanic and Atmospheric Administration Under Secretary Dr. D. James Baker reiterated the need for this replacement by the end of FY 00. NCDC requested that NWS establish a ListServer for electronic coordination of requirements among the many members of this multi-agency team. To join the ListServer, e-mail: awips@infosys.sao.noaa.gov, with a subject line of either join CoopMod, join ClimateRefNet, or Hourly Precip.

Development of NEXRAD Algorithm Evaluation Data Sets

Lieutenant Colonel Andy White, Chief of the National Weather Service-Operational Support Facility (NWS-OSF) Applications Branch, visited the National Climatic Data Center (NCDC) the week of May 24th to discuss the possible development of Next Generation Weather Radar (NEXRAD) evaluation data sets. The NWS-OSF is converting the current proprietary NEXRAD system to an open-system architecture which will allow users to independently modify or develop algorithms. Examples might include algorithms for improved hail detection, more detailed precipitation estimates based on season, air mass and climatic region, and a more accurate estimation of drop-size distribution based on a relationship between velocity and reflectivity, and development of a turbulence algorithm.

The conceptual plan for developing reference data sets employs the process of data fusion. NEXRAD Level II data will be combined with other data such as upper air, commercial aircraft measurements, satellite, Storm Data reports and surface observations. The reference sets will have to be developed for the many different climatic regions of the country and for a wide range of meteorological and non-meteorological events, such as tornadoes, thunderstorms, strong winds, flooding, hail, squalls, sea breezes, vertical wind shear, clear-air turbulence, chaff, birds, insects, etc.

✦ Data and Information Distribution

Service Records Retention System (SRRS) Migration Completed

The development and operational check of the new UNIX based SRRS system has been completed. The SRRS provides archive and access functions to National Weather Service (NWS) legally required products and data for forensic purposes. This UNISYS migration effort uses Automated Field Operations System (AFOS) based data as received from the NWS. The system has several user requested enhancements such as a Web based Graphical User Interface (GUI) that can be accessed directly by the NWS, and multi-day input request files. Parallel tests have been completed, including internal software documentation. Once a users guide has been completed by mid-June, the system with be considered operational.

NCDC NOAAPort Data Archive and Retrieval System (NDARS)

The newly proposed National Climatic Data Center (NCDC) NDARS project will provide access to realtime and retrospective data from the NOAAPort Broadcast to universities, National Weather Service (NWS) Advanced Weather Information Processing System (AWIPS) users, COMET for Case Studies, and the Regional Climate Centers. Additionally, this system will provide data to NCDC's Climate Data Division for NCDC-wide ingest. In close coordination with the Forecast Systems Laboratory (FSL) and Unidata, NDARS will implement existing software that will be ported for use at NCDC. NCDC is currently developing the NDARS system that leverages off of development efforts already

completed at the FSL for implementation at NCDC. Part of the FSL software includes real-time ingest software developed for AWIPS and modified for NCDC's existing NOAAPort Receive System (NRS). Unidata will supply a sub-system necessary for this effort called Local Data Manger (LDM). This coordinated effort between the Forecast Systems Laboratory (FSL), Unidata, the National Weather Service's COMET, the Regional Climate Centers, and the University community, leverages available software and development for access to NOAAPort data. A minimal functionality NDARS ingest and access system is expected in the fourth quarter of CY 99.

Hurricane Precipitation Data Studied

Dr. Libby Johns of the Atlantic Oceanographic and Meteorological Laboratory was supplied daily precipitation data for Cooperative locations in Florida Climate Divisions 4, 5, 6, and 7 via the National Climatic Data Center's (NCDC) anonymous ftp site. Dr. Johns intends to use the data in her research regarding precipitation expectations with land falling hurricanes in the South Florida area. The data were extracted using NCDC's On-line Climate Data system, which is under development. Approximately 14 megabytes of data were pulled and placed on the ftp server for downloading. Once the on-line system is operating, customers will be able to access the data and place orders themselves using a series of Web pages.

NNDC Online Store Additions

Three new publication products have been placed in the NOAA National Data Center's (NNDC) On-Line Data Store. They are: Climatography of the U.S. Freeze Frost Data, Tropical Cyclones, and Heating and Cooling Degree Days. In addition, preliminary daily temperature and precipitation data from the Cooperative Observer Network (COOP) have been placed on-line allowing customers to order the latest COOP data quickly.

Tropical Cyclone "02A"

A NOAA-14 image Tropical Cyclone "02A" was captured moving over Southeastern Pakistan. This is the first image that the National Climatic Data Center was capable of producing using the GIS software called ENVI. Using ENVI, the image can be geo-referenced, re-mapped and displayed in three channels with RGB color assignment. The image is highlighted at the on-line images section at www.ncdc.noaa.gov/ol/satellite/olimages.html.

New Science Book Explains Climate in Simple Terms

A new science book, the second in a series of "Popular Science" magazine books (the first was called *The Universe Revealed*), will be aimed at people with an interest in, but not necessarily a prior knowledge of, science. It explains complicated atmospheric processes in an easy to understand way, with the help of satellite images. The book is divided into climatic zones. The National Climatic Data Center supplied several satellite images taken by the Polar-orbiting Operational Environmental Satellite (POES) in September of 1997. The images show India in a normal monsoon season.

Data Format/Documentation Package

The Data Format/Documentation Package was completed for distribution by the World Meteorological Organization (WMO) to member countries cooperating in the Global Climate Observing System (GCOS) Surface Network program. In addition to providing current climate data for the established GSN stations, member countries will be asked to provide the National Climatic Data Center (NCDC) with historical monthly and daily data for these stations. NCDC will make the historical data available through the World Data Center-Asheville. The WMO package provides data format requirements for the data and any accompanying station history information.

The Climate Monitoring Report

The Climate Monitoring Report for April 1999 was placed on the Web May 14th. Although the global warmth continued through April, temperatures cooled considerably from the record warmth of April 1998, with the most significant cooling occurring over the ocean environment. For the U.S., the month averaged slightly warmer and wetter than the long-term average, however for the year to date, many Rocky Mountain and Western Plains states are experiencing near record warmth. A new product included in the April report is animated daily snow cover charts, available for the Northern Hemisphere, the U.S., and Asia-Europe.

Frequency, Duration and Intensity of Precipitation

The National Climatic Data Center (NCDC) will provide resources for the project: "Determination of Variations in the Frequency, Duration and Intensity of Precipitation in the U.S. over the last 50 years." Pete Steurer of NCDC is the principal investigator for the project, which is funded through the National Oceanic and Atmospheric Administration's Climate and Global Change Program.

Communications Upgrade Planned

Discussions were held with Internet service providers for two to four times the current T-1 line bandwidth. Current use of the National Climatic Data Center's (NCDC) Internet service is more than 95 percent for most of the business day. With more data sets and products being placed on-line, there is an obvious immediate need to increase access for NCDC's customers/users. A statement of work has been prepared for the increased service which calls for a mid-September installation and startup. This will allow for parallel testing with the current service before switching operations to the higher speed link.

✦ Satellite Data Requests

"Perfect Storm" Images

Daily Geostationary Operational Environmental Satellite (GOES) images of the "Perfect Storm," from October 26 through November 1, 1991, were provided to Time-Warner Productions. Visible and IR images were provided along with a readme file explaining the satellite imagery. The imagery will be used in an upcoming movie entitled "Perfect Storm," which is due to hit the cinemas this fall.

Satellite Images Used In Labor Dispute

Wilkens Weather, a large meteorological consulting firm, has ordered over 90 satellite images for the month of September 1998 over the Gulf of Mexico. The firm's client is allegedly in a large labor dispute with an oil drilling company, and will use the imagery to prove that the inclement weather was a major factor in production delays.

Alaskan Image

A production company working for The Discovery Channel is working on a documentary of Alaskan life and culture. Weather is a big part of life in Alaska, and the company asked the National Climatic Data Center for something that would demonstrate this. The Satellite Services Group, using infrared data from GOES-10, made an MPEG image file depicting a large low pressure system rotating in the Bering Sea with a cold front sweeping up the Aleutian Chain into the Gulf of Alaska and Southern Alaska.

✦ Regional and State Climate Centers

Regional Climate Center (RCC) Activities

Steve Hilberg has been named the Director of the Midwestern Climate Center (MCC), replacing

Ken Kunkel who has moved on to new responsibilities at the Illinois State Water Survey. The MCC has also lost a couple of key staff members; Karen Gleason has resigned to move to Asheville, NC, with her husband who is now working at the National Climatic Data Center (NCDC), and Carl Lonquist has retired.

As a result of the April 1999 RCC Directors' meeting, a list of 33 action items has been compiled. To keep the issues fresh in their minds, the Directors held a conference call on May 27th.

Kevin Robbins, Ken Hubbard, and Milt Brown participated in the Climate Reference Network (CRN) meeting hosted by NCDC. Additional RCC staff have been asked to help in the CRN effort.

Plans are under way for NCDC to host the user service staff from the RCCs at a workshop now planned for June 29-July 1. A number of customer service items are on the agenda.

High Plains Climate Center Collaboration

Ken Hubbard, Director of the High Plains Climate Center (HPCC), met with National Climatic Data Center (NCDC) staff to discuss potential areas of study concerning the development of 1971-2000 Normals. The impact of the Automated Surface Observation System (ASOS) and the Maximum-Minimum Temperature System (MMTS) on the normals computation is one area of interest. A graduate student working at the HPCC will submit a preliminary thesis topic related to this to the University of Nebraska. NCDC will also review and comment on the proposed work. To date, the majority of ASOS-related research at the HPCC has concerned differences in instrumentation for recording temperature and the potential effect on the long-term temperature record.

SCIENTIFIC AND PROFESSIONAL ACTIVITIES

✦ Working Groups/Committees/ Meetings

Midwestern Climate Center Board Meets

Steve Doty of the National Climatic Data Center attended the Midwestern Climate Center's (MCC) Advisory Board meeting held in Champaign, IL, May 26, 1999. The group of 15 board members was briefed on the MCC mission, activities, and organizational structure. The board offered many excellent suggestions for improvements and new products. They would like to see an emphasis placed on providing products for the urban user with special attention to the utility sector.

Meeting on the 40th Anniversary of the Launch of the Polar Satellite (TIROS-1) 4/1/2000

John Hughes participated via video conference in the weekly TIROS 40th Anniversary National Environmental Satellite, Data, and Information Service (NESDIS) planning meeting. NESDIS is planning to take the lead developing a program to celebrate the anniversary of the launch of the first weather satellite. The group is seeking corporate sponsors such as Lockheed/ITT. Plans are for a two-day symposium in Silver Spring, MD. A list of major Polar Satellite data users and a list of memorable images has been provided by the National Climatic Data Center (NCDC) to the committee. NCDC currently has the first image of TIROS (4/1/1960) on its satellite imagery Web

page. Planned speakers include NOAA Administrator Dr. D. James Baker as the opening speaker, and Senator John Glen as the evening reception speaker.

Workshop Speaker

Tom Ross of the National Climatic Data Center (NCDC) was an invited speaker at the National Environmental Satellite, Data, and Information Service (NESDIS) sponsored GOES-L Launch Workshop at Cape Canaveral, FL., May 14-15, 1999. The workshop was jointly sponsored by NOAA/NESDIS, Florida State University, the University of Oklahoma, and the National Aeronautics and Space Administration. The conference had various speakers from NOAA/ NESDIS, the U.S. Air Force, the Weather Channel, National Weather Service, the National Hurricane Center, and various universities. His presentation concentrated on NCDC educational resources and applications available via the Web. He gave an overview of the NCDC Web site and included topics such as NCDC satellite products and services, SSMI monthly products, the GOES Browse Server, NCDC Satellite Images, and the NCDC Educational Resources page. The teachers were also interested in NCDC's Monthly, Seasonal, and Annual reports that address the Global and U.S. "Climate in Perspective," Climate Watch page, Climate Extremes and Weather Events page, and numerous other Web pages and reports that deal with climatology and meteorology. The teachers also learned how to graph, plot, and download climate data and information for cities in their particular region. This tool will allow teachers to use these data in the classroom as part of various research projects.

Workshop Participation

The National Climatic Data Center's (NCDC) Principal Scientist, David Easterling, participated in the workshop "Climate Change and Adaptation," organized by the Washington Advisory Group. The workshop focus was to draft a research agenda for adaptation to potential climate change. Two areas crucial to adaptation that Dr. Easterling pointed out are more support for long-term climate monitoring activities, and research and monitoring of extreme events.

State Department Meeting

Tom Peterson participated (via telephone) in a State Department meeting held to draft the U.S. response to two items on the agenda of the upcoming United Nations Framework Convention on Climate Change and Subsidiary Body for Scientific and Technological Advice, regarding guidance on the Global Climate Observing System efforts to enhance research and systematic observation of the climate.

Support Services Contract Talks

National Climatic Data Center (NCDC), Eastern Administrative Support Center (EASC), and Orkand representatives met in Asheville, NC, May 11th and 12th to discuss the pending change order to the NCDC Mission Services Support contract. These negotiations were in response to the initial staffing and Acceptable Quality Levels (AQLs) changes counter proposed by the contractor. NCDC received Orkand's revised proposal on May 24th, and the government is in the process of gaining clarifications through EASC.

SP2 Conference

Jody Klein of the National Climatic Data Center (NCDC) attended the "SP2 World" Conference in Orlando, FL, to review trends in the scalable RS/6000 architecture being employed at NCDC. The IBM SP2 system is hosting most of the applications that were recently migrated from NCDC's Unisys mainframe computer. Jody attended tutorial sessions for optimizing and performance tuning processor nodes. He was also able to establish contacts with other users that have similar interests and uses of the SP2 architecture.

✦ Visitors

NWS OSF Visitor

Lieutenant Colonel Andy White of the National Weather Service (NWS) Operations Support Facility (OSF) for Next Generation Weather Radar (NEXRAD) visited the National Climatic Data Center (NCDC). Potential OSF/NCDC collaboration in regard to accessing large archived WSR-88D Level II data sets in a cost effective and timely manner were discussed. Lt Col White is also interested in the creation of Level II products to be used for data mining studies.

✦ Publications

NCDC Featured in National Magazine

An article featuring the National Climatic Data Center (NCDC) was published in the June 1999 issue of the magazine *Imaging and Document Solutions*. The article outlines NCDC's efforts to place the historical paper records on-line through imaging and access software. The idea of the article was due to the efforts of Hyland Software, the provider of OnBase, the access software that NCDC purchased several years ago to handle the images being created under the Environmental Data Rescue Program.

✦ Interactions with NOAA Line Offices

GSP Visit

Several National Climatic Data Center personnel visited the Greenville-Spartanburg, SC, National Weather Service Forecast Office May 17, 1999, to learn more about the Advanced Weather Information Processing System, WSR-88D, and other data streams.

Annual Hurricane Season Press Conference

Patricia Viets, National Oceanic and Atmospheric Administration Public Affairs Coordinator, requested and received 40 copies of the 1998 Atlantic Tropical Storm Technical Report earlier this month for distribution at the annual hurricane season press conference.

EMPLOYEE ACTIVITIES

✦ EEO and Community Outreach

Greater Asheville Public Service Steering Committee

The 9th annual Public Service Awards Breakfast was held Wednesday, May 26th, at the University of North Carolina-Asheville. This year's attendance (the largest in nine years) approached 250 people from the City, County, Federal, State and Municipalities in the Asheville-Buncombe County area. Tammy Watford from WLOS-TV, Asheville, was the Master of Ceremonies. There were 18 NCDC employees in attendance supporting our nominees. Dee Dee Anders, Freida Evans and Wayne Faas were NCDC's nominees this year.

GLOBE Program

The GLOBE (Global Learning and Observations to Benefit the Environment) Program is a worldwide network of students, teachers and scientists from 6,500 schools and over 80

countries working together to study and understand the global environment. Early next year, GLOBE will publish an educational module on Earth System Science in which students will track a storm across North America and investigate the effects. The National Climatic Data Center (NCDC), using the Historical Geostationary Observational Earth Satellites (GOES) Browse Server, identified a storm as it entered Southern California, swung across Arizona and Texas, up to the Ohio River Valley, then to New England and Nova Scotia. Ten infrared GOES-8 images were produced and sent to the Program coordinator.

United Way - Combined Federal Campaign

Karol Pittman of the National Climatic Data Center is a member of the Local Federal Coordinating Committee for this year's Combined Federal Campaign (CFC). The committee's purpose is to ensure adherence to OPM guidelines and assist CFC chairpersons in directing the campaign.

✦ Personnel Resources

State Climate Student Working at NCDC

Mr. James Cupp, a student at the University of Virginia, will be working at the National Climatic Data Center (NCDC) this summer under the sponsorship of the Virginia State Climatologist Office. Mr. Cupp is working on a project, as part of his honors work, to determine the trends in visibility for the periods before the availability of digitized hourly observations, generally 1948. To obtain these data, he will have to review the paper archives held by NCDC.

Heading for Caribou, Maine

Lee Foster of the National Climatic Data Center (NCDC) has accepted a forecaster position at the WSFO in Caribou, Maine. July 18, 1999, is Lee's last day at NCDC. Lee developed and maintained the solar, upper-air, aircraft, and rocketsonde operational data processing systems.

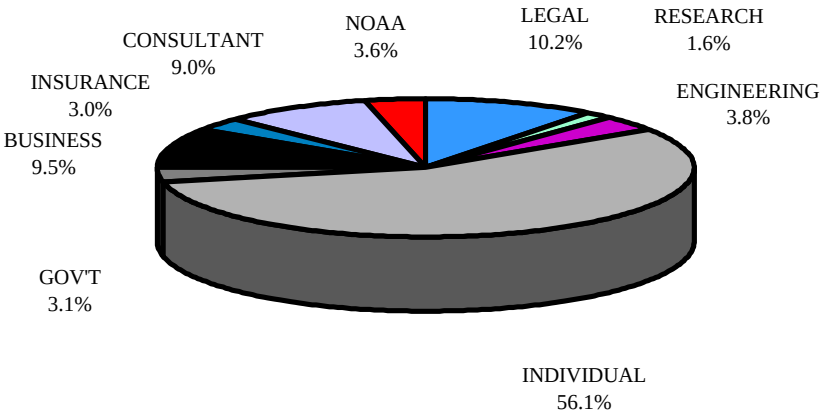
✦ Training

Adobe

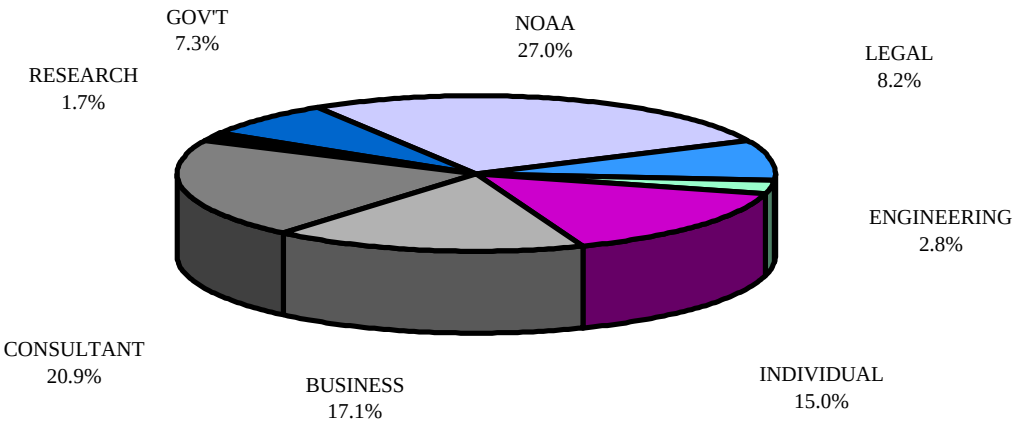
Tom Ross and Catherine Godfrey of the National Climatic Data Center (NCDC) attended local training sessions for Adobe Photoshop and Adobe Illustrator May 12-13, 1999. The training sessions covered mastering the capabilities of the two software packages. The practical information and tools learned should help to produce images and graphics more efficiently and easily. These graphics are incorporated into the monthly, seasonal and annual "Climate in Perspective" reports and other NCDC reports and projects.

The following charts and graphs show the latest National Climatic Data Center user and data statistics.

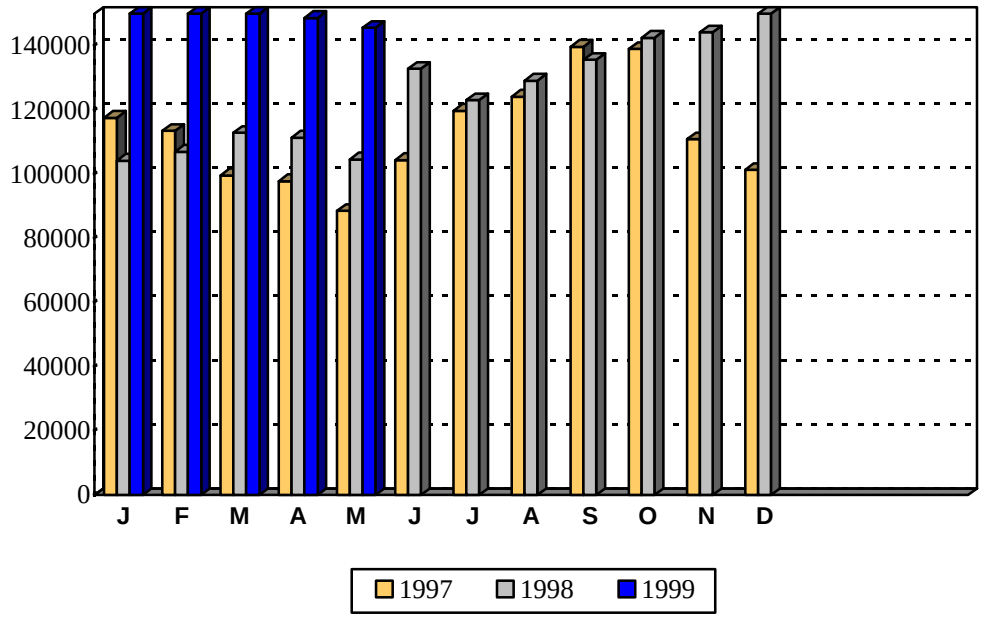
Customer Profile Based on Orders



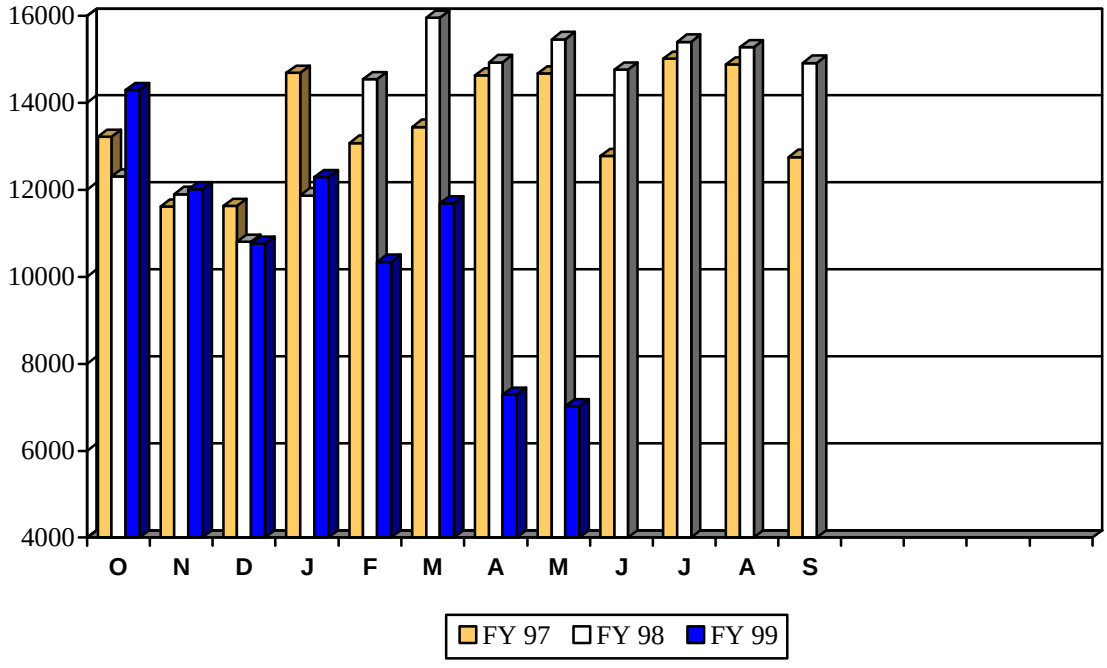
Customer Profile Based on Order Cost

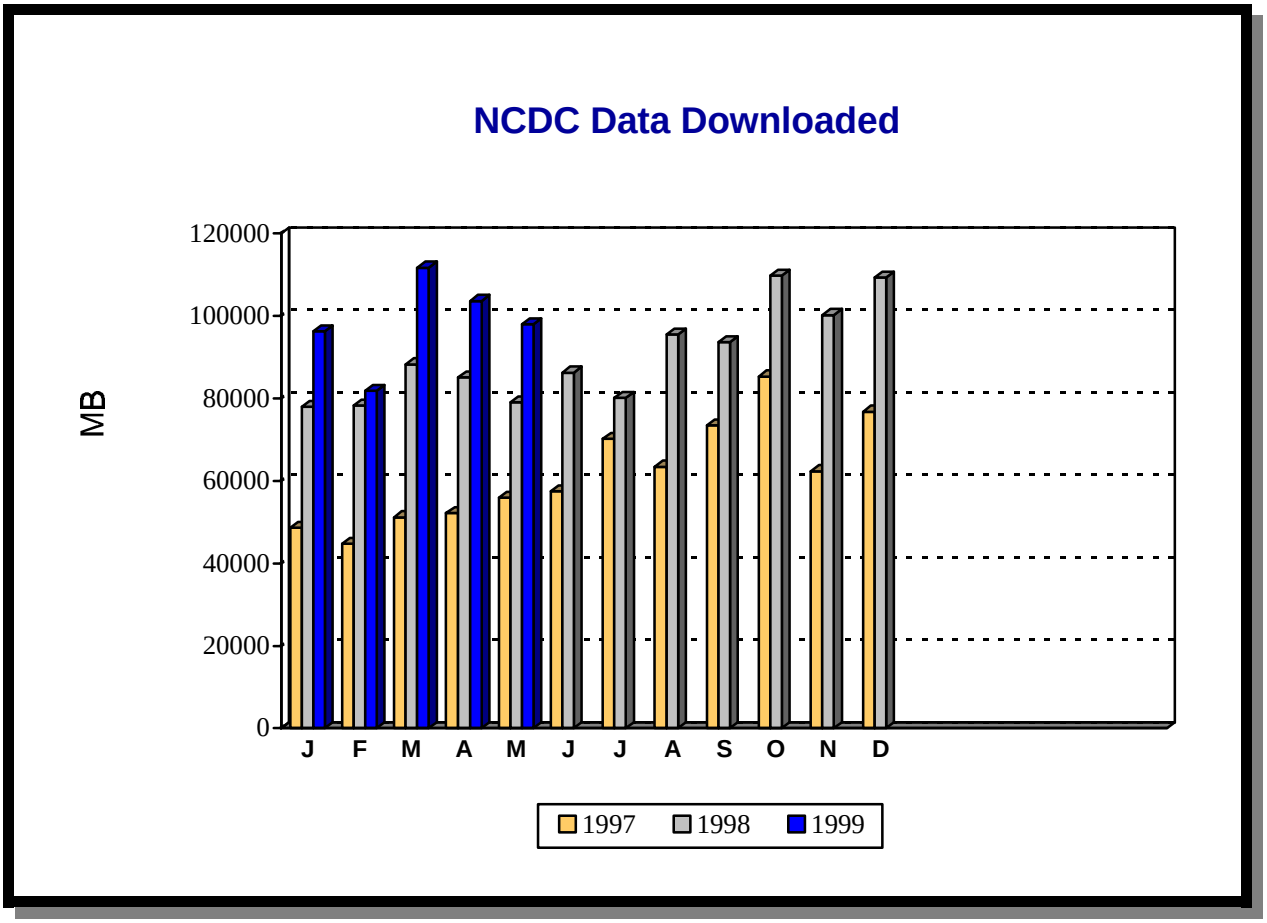


NCDC On-Line Users



NCDC Off-Line Customer Contacts

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